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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,426	01/18/2006	David Richard Hallam	CAF-206-A	7386

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EXAMINER	
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ART UNIT	PAPER NUMBER
1723	

NOTIFICATION DATE	DELIVERY MODE
01/05/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/565,426	HALLAM, DAVID RICHARD	
	Examiner	Art Unit	
	BRYAN D. RIPA	1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 August 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 6-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on August 2, 2010 has been entered.

Response to Amendment

In response to the amendment received on August 2, 2010:

- claims 1-4 and 6-17 are presently pending
- the rejection of claims 1-4 and 6-17 under 35 U.S.C. 112, second paragraph, is maintained
- the objection to claim 6 is withdrawn in light of the amendments to the claims
- all prior art rejections are withdrawn
- new grounds of rejection are presented below

Specification

2. The abstract of the disclosure is objected to because the abstract refers to an inactivating zone 10 when the body of the disclosure and the figures show element 10 being a silica glass tube dielectric of the corona discharge unit. Additionally, the abstract also describes 1 as the apparatus and 9 as the chamber when the rest of the specification describes element 1 as being the casing and element 9 being the inactivation zone and (see discussion as to figure 1 in paragraph 47 of the corresponding U.S. Publication). Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-4 and 6-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claims 1 and 17 both recite a negative limitation requiring there to be no use of an "ozone decomposition catalyzer" within the apparatus outside the inactivation zone (see the last three lines of claim 1 and the first three lines of claim 17).

In interpreting claim language, the examiner is required to use the "broadest reasonable interpretation" standard as outlined in the MPEP. See MPEP §2111. In light of that standard, as presently written the phrase would appear to preclude the use

of any substance within the apparatus outside the inactivation zone (see figure 1 from Applicant's disclosure depicting inactivation zone 9) which would act to catalyze, i.e. help to initiate or accelerate, the decomposition reaction of ozone to diatomic oxygen without itself reacting. This is based on the fact that any material capable of acting as an ozone decomposition catalyst outside the inactivation zone could conceivably function in the device to catalyze the decomposition of ozone to at least some degree and could therefore be termed "an ozone decomposition catalyzer" as claimed.

Moreover, based on the Examiner's review of the specification and the prior art the Examiner is aware that Applicant likely intends the phrase to preclude the use of a designated filter or treatment device designed specifically for exposing the ozone in the cleaned air to a decomposition catalyzer for specifically reducing the amount of ozone in the treated air (see for example Masuda et al., "The Performance of an Integrated Air Purifier for Control of Aerosol, Microbial, and Odor" IEEE Transactions on Industry Applications 29 (4), pages 774-780 (1993) (hereinafter referred to as "MASUDA") at pages 774-775 teaching the passing of the air through a honeycomb-shaped catalyzer; see also Potember et al., WO 2003/028773 A1 (hereinafter referred to as "POTEMBER") at page 17 and figures 1 and 2 showing the air passing through a filter with a support specifically designed to contain a ozone decomposition catalyst material for catalyzing the decomposition of ozone); however, as presently drafted the Examiner is of the opinion that the limitation is considerably broader in scope.

Moreover, although the claim limitation purports to require there to be no use of an ozone decomposition catalyzer outside the inactivation zone, the specification

discusses the use of aluminum for the casing (see ¶33 disclosing the use of aluminum for the casing) and the use of a filter (see ¶53 teaching the use of a HAF FILTRETE post-filter 8; see also page 1 of FILTRETE FILTER MSDS listing one of the ingredients of the filter being titanium dioxide) that are known to catalyze the decomposition of ozone (see MASUDA at page 775 teaching the use of titanium dioxide in a silica based ceramic material to catalyze the decomposition of ozone; see also POTEMBER at page 17 listing the use of aluminum, metals, metal oxides as suitable materials to catalyze the decomposition of ozone).

Consequently, the claim language requiring the negative limitation is unclear in light of the fact that the disclosed apparatus appears to require the use of several materials that could potentially act to catalyze the decomposition of ozone in the area outside the inactivation zone.

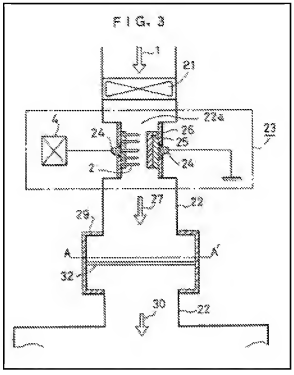
Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1-3, 13, 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda et al., (U.S. Pat. No. 5,445,798) (hereinafter referred to as "IKEDA") in view of Bennett et al., (U.S. Pat. No. 4,049,400) (hereinafter referred to as "BENNETT") and Hallam et al., (GB 2358350) (hereinafter referred to as "HALLAM").

Regarding claims 1 and 3, IKEDA teaches an apparatus for the treatment of air comprising a low power alternating current corona discharge ozone generator (see ionization chamber 23; col. 10 line 66-col. 11 line 9 describing the apparatus used for creating the corona discharge; col. 11 lines 15-17 teaching the formation of ozone) mounted inside a chamber the chamber being defined by a metal casing (see air duct 22 having the ozone generator mounted inside; see also col. 13 lines 42-43 teaching the duct being made of a metal) and having an air inlet and an air outlet (see air inlet and outlet at the top and bottom of figure 3) and at least one air flow impeller formed and arranged for inducing a flow of air through said chamber (see fan 21; col. 10 lines 32-34), said ozone generator being formed and arranged for generating a restricted concentration of ozone and any other reactive species formed together therewith, within an inactivating zone contained within said chamber, through which said air flow is passed in use of said apparatus (see col. 11 lines 10-17 discussing the use of a high voltage corona discharge to generate ozone, within the space occupied by ionization chamber 23 up to heating resistor 32, i.e. an inactivating zone, through which the air flow is passed), which restricted concentration is sufficient effectively to inactivate airborne pollutant material entrained in said air flow (see col. 11 lines 10-17 discussing the use of a high voltage corona discharge to generate ozone), yet which restricted concentration decays sufficiently outside said inactivating zone so that the concentration of ozone in the cleaned air expelled from said apparatus is at a physiologically acceptable level without the use of an ozone decomposition catalyzer (see col. 13 lines

54-59 discussing embodiment 3, as shown in figure 3, using heat to decompose the residual ozone and not an ozone decomposition catalyst). See figure 3 below.



A. IKEDA, however, does not explicitly teach the chamber in which the low power corona discharge ozone generator is mounted being earthed or grounded.

BENNETT teaches that it was known in the art to ground or earth the metallic casing of an electronic device to provide for greater user safety (see col. 4 lines 21-23 teaching the grounding of the metal pieces forming the housing or casing of the air purifying device for safety reasons, i.e. to reduce the chance of a user getting shocked).

As a result, it would have been obvious to one of ordinary skill in the art at the time of invention to ground or earth the casing of IKEDA as taught by BENNETT in order to ensure greater safety during use of the electrically powered device.

B. IKEDA, also does not teach the low power corona discharge device comprising concentric tubular metal gauze electrodes separated by a tubular strengthened glass dielectric with a power rating of approximately 36 watts.

However, HALLAM does teach the use of a low power corona discharge device for the generation of ozone comprising concentric tubular metal gauze electrodes separated by a tubular strengthened glass dielectric (see page 3 discussing corona unit 19 comprising a quartz glass sandwiched between two stainless steel mesh electrodes which would provide for some amount of strengthening to the glass dielectric) wherein the power rating of the low power corona discharge ozone generator is approximately 36 watts (see page 3 teaching the operating current being 9 mA at 4 kV).

Consequently, as shown by HALLAM, a person of ordinary skill in the art would accordingly have recognized the use of a tubular corona discharge device to facilitate creating an electric field for the generation of ozone and ions.

The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395–97 (2007) (see MPEP § 2143, B.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute the ionization chamber of IKEDA with the discharge unit of HALLAM to obtain the predictable result of having a low power corona discharge device having concentric tubular metal gauze electrodes separated by a tubular strengthened glass dielectric.

Regarding claim 2, IKEDA teaches the apparatus for the treatment of air wherein said low power corona discharge ozone generator comprises a low power corona discharge device provided with a low power high voltage output transformer (see high voltage generator 4; col. 1 lines 19-22 and col. 11 lines 5-6 discussing the application of a several kV potential by the voltage generator). See figure 3 above.

Regarding claim 13, HALLAM teaches the low power corona discharge ozone generator wherein an AC supply is used with an operating voltage in the range from 1 to 6 kV (see page 3 teaching the potential between the electrodes being 4 kV).

Regarding claim 14, HALLAM teaches the low power corona discharge ozone generator wherein an AC supply providing a starting current in the range from 1 to 10 mA (see page 3 teaching the operating current being 9 mA).

Regarding claim 16, IKEDA teaches the apparatus for the treatment of air wherein the low power corona discharge device has a solid dielectric (see dielectric 26; col. 10 lines 39-42). See figure 3 above.

Regarding claim 17, IKEDA teaches a method of cleaning air without the use of an ozone decomposition catalyzer (see discussion above with respect to the rejection of claim 1 under IKEDA discussing the use of a pyrolytic means to decompose the ozone), comprising the steps of: providing an apparatus of claim 1 (see the discussion above

with respect to the rejection of claim 1 under IKEDA), powering the ozone generator of said apparatus so as to generate ozone in the inactivation zone of said apparatus (see high voltage generator 4), and operating said airflow impeller so as to pass a flow of said air through said inactivation zone (see col. 10 line 63-col. 11 line 17). See figure 3 above.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over IKEDA in view of BENNETT and HALLAM as applied to claims 1-3 above and further in view of the English abstract of JP 51103095 (hereinafter referred to as "NIPPON") with evidence from Fovell et al., (U.S. Pat. No. 4,960,569) (hereinafter referred to as "FOVELL").

Regarding claim 4, IKEDA as modified by BENNETT and HALLAM does not teach the glass dielectric being of titanium oxide strengthened borosilicate glass. Rather, HALLAM teaches the dielectric being quartz glass (see page 3) and IKEDA, while mentioning the dielectric being glass, ceramic, or quartz does not explicitly teach the use of titanium dioxide strengthened borosilicate glass.

However, NIPPON teaches the use of a glass dielectric having titanium dioxide added in an ozone generator (see abstract).

Furthermore, FOVELL evidences the fact that the use of borosilicate glass in a concentric tubular corona discharge device for the creation of ozone was known in the

art (see col. 2 lines 58-60). As a result, one of ordinary skill in the art would have understood the term glass to include all types of glass, i.e. including borosilicate glass.

Consequently, as shown by NIPPON and as evidenced by FOVELL, a person of ordinary skill in the art would accordingly have recognized the use of a titanium dioxide strengthened borosilicate glass as the dielectric for use in a corona discharge device.

The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395–97 (2007) (see MPEP § 2143, B.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide for the use of a borosilicate glass dielectric with titanium dioxide as claimed.

6. Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over IKEDA in view of BENNETT and HALLAM as applied to the rejections of claim 1 above.

Regarding claims 6 and 15, IKEDA as modified by BENNETT and HALLAM is silent with respect to the residence time and flow rate of the air to be treated.

However, one of ordinary skill in the art would have recognized the flow rate of air through the apparatus and the residence time of the air to be treated in the chamber to be a result effective variable, since the flow rate and residence time of the air to be treated would need to be adjusted so as to allow for sufficient time for the air to be cleaned as disclosed. See MPEP §2144.05 (II)(B).

As a result, one of ordinary skill in the art would have been motivated to provide for a flow rate of air through the apparatus in the range of 50 to 2500 m^3/hr as well as others and a residence time of 0.2 to 20 seconds in the chamber of the apparatus in order to find optimum working conditions that maximize the flow rate of air, thereby decreasing the residence time, while still allowing sufficient time for air purification.

7. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over IKEDA in view of BENNETT and HALLAM as applied to claim 1 above and further in view of Yikai et al., (U.S. Pat. No. 5,055,115) (hereinafter referred to as "YIKAI").

Regarding claims 7 and 9, IKEDA as modified by BENNETT and HALLAM does not teach the inlet or the outlet being fitted with at least one filter.

However, YIKAI teaches the apparatus for the treatment of air wherein the inlet is fitted with at least one filter (see filter 56; col. 3 lines 55-58; see also figure 2) and wherein the outlet is fitted with at least one filter (see fins 7; col. 2 lines 46-48 stating air outlet 6 having a number of fins which would act as a filter).

Moreover, one of ordinary skill in the art would have appreciated that the use of inlet and outlet filters would help to further clean the air and provide additional cleaning benefits by providing for the removal of dust and other particulates from the air while also ensuring these particulates do not enter the apparatus causing unwanted buildup.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to include inlet and outlet filters on the air cleaner of IKEDA as taught by YIKAI.

Regarding claim 8, YIKAI teaches the apparatus for the treatment of air wherein is provided at least one filter for removing tobacco smoke (see col. 4 lines 7-14 teaching the collection of tobacco smoke on collecting electrode 16, i.e. electric precipitating apparatus 13 acting as a filter).

Regarding claim 10, YIKAI teaches the apparatus for the treatment of air wherein is provided an electrostatic filter (see col. 2 lines 58-60 teaching there being an electrostatic precipitator in the device, i.e. an electrostatic filter).

8. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over IKEDA in view of BENNETT, HALLAM and YIKAI as applied to claims 1 and 7 above, and further in view of TEPPER.

Regarding claim 11, IKEDA does not teach the inlet and outlet of the air cleaner device being arranged in close proximity to each other such that the apparatus can be provided with a single filter mounting.

However, TEPPER teaches an air filtration system where the inlet and the outlet are in proximity to each other and where the apparatus is also provided with a single

filter mounting (see housing 102; col. 4 lines 37-58 teaching various configurations of the air inlet and outlet to suit the particular application).

Consequently, as shown by TEPPER, a person of ordinary skill in the art would accordingly have recognized the use of a single filter mounting with the air cleaning device of IKEDA. Moreover, this would have provided for the obvious benefit of requiring only a single filter unit to provide for the both the inlet and outlet filtration.

The simple substitution of one known element for another is likely to be obvious when predictable results are achieved. See *KSR Int'l Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395-97 (2007) (see MPEP § 2143, B.).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to alter the shape of the IKEDA air cleaner to comprise a box-like unit, as that used in TEPPER, to provide for the predictable result of having a single filter mounting with a filter occluding both the inlet and outlet of the device.

9. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over IKEDA in view of BENNETT as applied to claim 1, and further in view of FOVELL.

Regarding claim 12, IKEDA does not explicitly teach the AC supply having a frequency in the range from 50 to 1000 Hz.

However, FOVELL teaches the use of a corona discharge ozone generator where the AC supply has a frequency of 400 Hz (see col. 5 lines 10-11).

Consequently, as shown by FOVELL, one of ordinary skill in the art would accordingly have recognized the use of an AC supply having a frequency around 400 Hz as a suitable frequency.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have the AC supply having a frequency in the range of 50 to 1000 Hz as claimed in order to provide for the generation of a corona discharge in the device of IKEDA.

Response to Arguments

Applicant's arguments with respect to claims 1-4 and 6-17 have been considered but are moot in view of the new ground(s) of rejection.

As to Applicant's arguments relating to the rejection of the claims under 35 U.S.C. 112, second paragraph the Examiner respectfully disagrees that the basis for the rejection is improper.

For the reasons mentioned previously the Examiner is of the opinion that the scope of Applicant's negative limitation is indefinite in view of the teachings of Applicant's own specification.

Moreover, the Examiner is not arguing that the broadest reasonable interpretation standard requires a consideration of Applicant's specification, but is instead arguing that Applicant's claim limitation, when interpreted under the broadest

reasonable interpretation standard is unclear or indefinite in light of Applicant's specification.

While it appears to the Examiner that the Applicant intends the limitation to preclude the direction of the air flow through a component or filter having an ozone decomposition catalyzer thereon for the specific purpose of removing ozone from the air this is not claimed.

Furthermore, based on the description in the specification it would appear that the broadest reasonable interpretation of the claim limitation is inconsistent with Applicant's specification (see MPEP §2173.03). Consequently, in view of this inconsistency the Examiner is of the opinion that the negative limitation should be clarified in order to specifically recite what is being precluded by the limitation.

As to Applicant's arguments relating to the titanium dioxide in the dielectric layer (see Remarks at page 5, last full paragraph), the Examiner acknowledges that the claim language specifically requires there to be no use of an ozone decomposition catalyzer outside the inactivation zone (see last five lines of claim 1). Moreover, the Examiner believes the claim limitation to require that no use of an ozone decomposition catalyzer be used outside the inactivation zone and, consequently, any materials within the activation zone are not precluded by the claim limitation.

As to Applicant's remarks directed to the casing material (see Remarks at page 6, first full paragraph), the Examiner respectfully disagrees with the Applicant's

assertions. While the Examiner acknowledges that the specification discloses that no decomposition catalyzer is used (see Applicant's specification at ¶24) and this is claimed in independent claim 1, the specification also discloses the use of aluminum and other materials as the casing material (see ¶33), which as shown by the Examiner can act to catalyze the decomposition of ozone. In fact, it is this very inconsistency between the broadest reasonable interpretation of what is claimed, i.e. no use of an ozone decomposition catalyzer, and what is disclosed in the specification as a suitable casing material, i.e. aluminum or metallic coatings, that renders the claim limitation indefinite.

Moreover, absent additional details as to what is exactly being precluded by the negative limitation prohibiting the use of an ozone decomposition catalyzer outside in the inactivation zone, it would appear to the Examiner that the aluminum, amongst other metallic casing materials, could act to catalyze the decomposition of the ozone within the chamber.

Applicant further argues that the Examiner is interpreting the claim against the express technical disclosure (see Remarks on page 6). However, as pointed out by the Examiner previously, the specification also states that a material can be used for the casing that is a known to catalyze the decomposition of ozone. It is this inconsistency that renders the scope of the claim limitation requiring no use of an ozone decomposition catalyzer outside the inactivation zone indefinite.

As to Applicant's arguments relating to the FILTRETE filters used in the device, the Examiner readily acknowledges that titanium dioxide is known to have other purposes besides its use as an ozone decomposition catalyzer. Moreover, the Examiner readily acknowledges that the amount of titanium dioxide used within the filter is a small amount. However, the claim limitation doesn't require a certain amount of ozone decomposition catalyzer nor does the claim limitation only apply to a filter designed to catalytically decompose a specified percentage of the ozone passing through it. Instead, the claim limitation as presently drafted precludes the use of an ozone decomposition catalyzer, which under the broadest reasonable interpretation standard would appear to the Examiner to preclude the use of a filter capable of catalytically decomposing 90% of the ozone or a filter capable of catalytically decomposing 1% of the ozone.

Additionally, little weight is given to Applicant's argument that the FILTRETE filter having titanium dioxide would not act as an ozone decomposition catalyzer. See MPEP §2145(I). Absent evidence to the contrary, the Examiner has established a reasonable basis on which to assume that the FILTRETE filter would act to some degree to catalytically decompose ozone. On this basis, it would appear that there is an inconsistency between the scope of the claim limitation and the invention as disclosed in the specification.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BRYAN D. RIPA whose telephone number is 571-270-7875. The examiner can normally be reached on Monday to Friday, 9:00 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/
Primary Examiner, Art Unit 1723

/B. D. R./
Examiner, Art Unit 1723